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ABSTRACT

The 1999 Minnesota Legislature asked for a study of the borrowing and repayment problems of students in the Academic Health Center (AHC) at the University of Minnesota. Findings of this study show that most graduate and professional students at the AHC borrowed by the time they completed their graduation or professional programs. Many borrowed $50,000 or more and will use more than 10% of their incomes to repay their loans in the early years after graduation. Most undergraduates borrowed, but the average amount was $13,300, and a borrower with a $30,000 income will use 5% of annual income to repay this amount in student loans (assuming 7% interest and a 10-year repayment plan). Average borrowing amounts and estimated income percentages requires for repayment are given for students in these departments of the AHC: (1) dentistry; (2) medicine; (3) nursing; (4) pharmacy; (5) public health; (6) and veterinary medicine. Findings suggest that all graduate and professional students at the AHC would benefit from additional debt counseling, and employers may want to consider loan repayment assistance as an employee benefit. Appendix 1 describes the terms and conditions of the loan program, and appendix 2 describes loan repayment programs for professionals who work in designated health professional shortage areas. (SLD)

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Health Sciences Graduate and Professional Students and Debt

Prepared by the staff of the Minnesota Higher Education Services Office

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Executive Summary

The 1999 Minnesota Legislature asked for a study of the borrowing and repayment problems of students in the Academic Health Center at the University of Minnesota. Most graduate and professional students in the Academic Health Center borrowed by the time they completed their graduate or professional programs. Many borrowed $50,000 or more and will use more than 10 percent of their incomes to repay their loans in the early years after graduation.

In contrast, while most (60 percent) 1996 bachelor s degree recipients borrowed during their undergraduate education, the average amount borrowed was $13,300. A borrower with a $30,000 income will use 5 percent of annual income to repay $13,300 in student loans (assuming 7 percent interest and a 10-year repayment plan).

Figure 1 shows the percentages of students who borrowed in the class of 1998 for the University of Minnesota Health Sciences units and for U.S. bachelor s degree recipients in 1996. Figure 2 shows the median amounts borrowed. Figure 3 shows student loan payments as a percent of starting salaries.

Dentistry

The price of attendance for a four-year dental education at the University of Minnesota is about $111,700 for a Minnesota resident student. This price includes tuition and required fees at the 1999-2000 academic year rates, books, supplies, and an allowance for 12 months of living expenses. About 78 percent of 1998 dental students at the University of Minnesota had student loans by the time they graduated. The median amount of student loan debt known to the University of Minnesota at graduation was $84,400. Median earnings for dentists age 30-34 were $82,000 in 1996. Assuming that most dentists earned $70,000 or more in starting salaries, payments on the median $84,400 in student loans required 17 percent of income (assuming 10 years of repayment at 7 percent interest).

Medicine

The price of attendance for a four-year medical education at the University of Minnesota is about $112,000. About 93 percent of medical students who graduated from the University in 1998 had student loans. Average cumulative debt for these students was $82,200. The average stipend at Midwest hospitals for physicians in the first year of residency was $34,000 in 1998-99. While medical residents no longer automatically qualify for interest-free deferments of their loan payments, many qualify for economic hardship deferments during their first one or two years of residency. When they are no longer eligible for economic hardship deferments, many residents use forbearance to postpone making payments during residency. Interest accumulates during forbearance, adding to the cost of repaying the loans. Median earnings for physicians after residency were $124,800 in 1996. Assuming that most physicians earn $100,000 or more, payments on the average $82,200 in debt would require 11 percent of income (assuming a 10-year repayment plan and 7 percent interest).

Nursing

The price of attendance for a bachelor s degree in nursing at the University of Minnesota is about $54,900 for a Minnesota resident student. About 64 percent of bachelor s degree nurses who graduated from the University of Minnesota in 1998 had student loans. The median amount for those who borrowed was $21,000. The average starting salary for 1997 bachelor s degree nurses was $37,000. Assuming that most bachelor s degree nurses earn $30,000 or more in their first year, payments on the median $21,000 in debt would require 10 percent of income (assuming a 10-year repayment plan and 7 percent interest). Median amounts borrowed for master s degree nurses and Ph.D. degree nurses were lower than the $21,000 for bachelor s degree nurses. Starting salaries for master s degree nurses, nurse practitioners and Ph.D. degree nurses were higher than for bachelor s degree nurses. Thus the percentage of income devoted to loan repayment is lower for nurses with advanced degrees than it is for nurses with bachelor s degrees.

Pharmacy

At the University of Minnesota, the entry level Doctor of Pharmacy (Pharm.D.) program prepares students to be pharmacists. The price of attendance for a four-year Pharm.D. degree at the University of Minnesota is about $76,400. About 87 percent of 1998 Minnesota Pharm.D. graduates had student loan debt. The median amount for those with debt was $44,000. Assuming a starting salary for a Pharm.D. graduate of $50,000, payments on the median debt of $44,000 would be 12 percent of income (assuming 10 years of repayment at 7 percent interest).

Public Health

The price of attendance for a three-year master s degree in public health at the University of Minnesota is about $42,000. About 34 percent of 1998 Minnesota public health graduates had student loan debt. The median amount for those with debt was $15,000. Assuming a starting salary for a public health graduate of $30,000, payments on the median debt of $15,000 would be 7 percent of income.

Veterinary Medicine

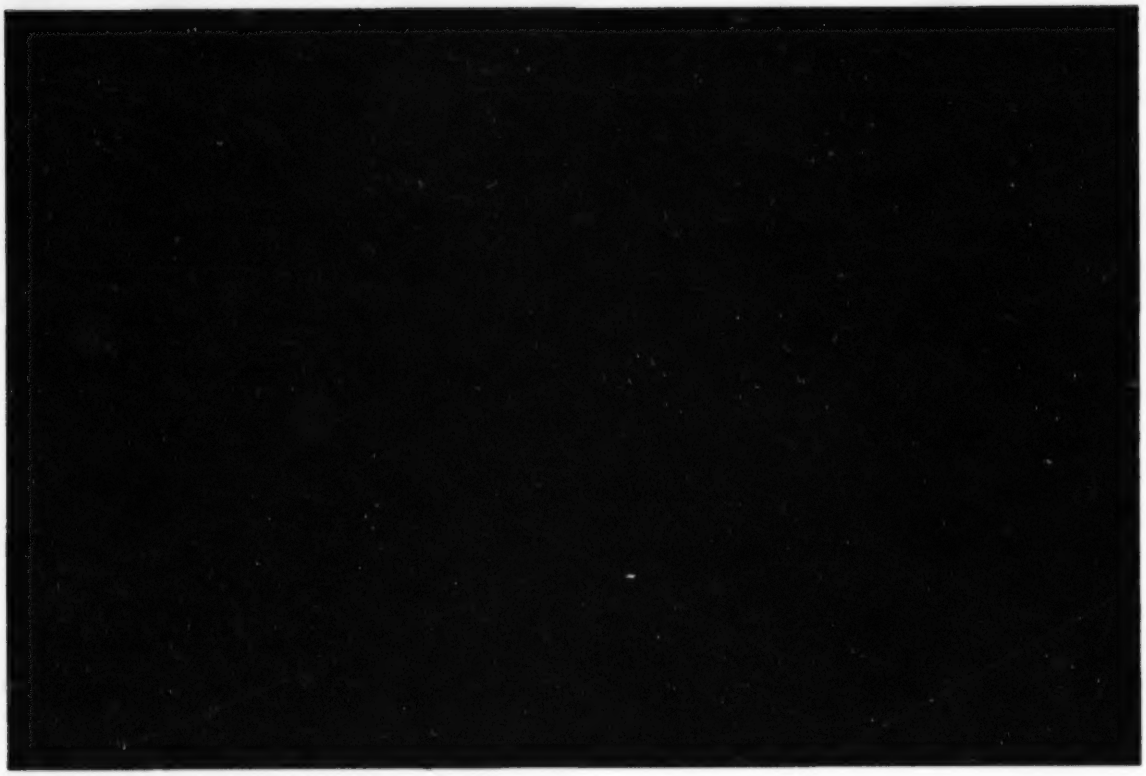
The price of attendance for a four-year veterinary education at the University of Minnesota is at least $80,800 for a Minnesota resident. About 83 percent of veterinary students who graduated from the University of Minnesota in 1998 had student loans. Minnesota veterinary graduates in 1998 had median cumulative student loan debt of $56,500. Median earnings for veterinarians in the first year of practice were $38,800 in 1999. Assuming that most veterinarians earn $30,000 or more, payments on the median $56,500 in debt would require 26 percent of income in the first year of practice (assuming 7 percent interest and a 10-year repayment plan).

Discussion of Debt and Health Sciences Professional Students

Different levels of debt appear appropriate to different borrowers. One borrower may find payments of 8 percent of income to be too much. Another may find payments of 15 percent of income to be worthwhile.

Debt counseling tools are available to help students make informed decisions. Debt counseling tools include letters to borrowers, video tapes, brochures, toll-free customer hotlines, Internet loan counseling information, interactive repayment calculators, interviews before students take out their first loans, interviews before students leave school, and conversations with recent alumni about what it is like to repay student loans.

All graduate and professional students in the Academic Health Center benefit from current efforts to provide information on responsible borrowing. Efforts to encourage students to take debt counseling information seriously continue to be important. Anecdotal reports indicate that recent alumni are particularly effective in providing debt management information to current students. Employers may want to consider loan repayment assistance as an employee benefit.



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Introduction

The 1999 Minnesota Legislature asked for a study of the borrowing and repayment problems of students in the Academic Health Center:

> "The higher education services office shall work with the office of the senior vice-president for health sciences at the University of Minnesota to determine the borrowing and repayment problems of students in the academic health center. The higher education services office shall report any findings and recommendations to the higher education finance committees by February 1, 2000." (*Laws of Minnesota 1999*, Chapter 214)

This report describes the student loan debt of health science graduate and professional students. The report uses data from the University of Minnesota on the debt of students in the class of 1998. Additional national information is used when available to compare what is happening in Minnesota to what is happening across the United States.

The Minnesota Higher Education Services Office prepared this report in consultation with the University of Minnesota Office of the Senior Vice President for Health Sciences. The consultation process included meeting with the Associate Vice President for Health Sciences and representatives of the Health Sciences units, obtaining data on graduate and professional students who graduated in 1998, and jointly reviewing drafts of the report.

This report has a section on each of the Health Sciences units:

- Dentistry
- Medicine
- Nursing
- Pharmacy
- Public Health
- Veterinary Medicine

For each unit, the report addresses the following questions:

- How much do students pay for the graduate or professional education?
- How many of the students borrow?
- How much do they borrow?

- What do we know about what it is like for them to repay the student debt?

Following the sections on students in each of the Health Sciences units, there is a comparison of borrowing by graduate and professional students in Health Sciences at the University of Minnesota with borrowing by undergraduates nationally. Finally, there is a discussion of issues involved in analyzing student debt.

Appendix 1 of this report describes the terms and conditions of the loan programs. Appendix 2 describes loan repayment programs for professionals who work in designated health professional shortage areas.

Dentistry

The Price Students Pay for Dental Education at the University of Minnesota

- The annual price of attendance for dentistry students at the University of Minnesota in the 1999-2000 academic year is:
  - $14,400 for tuition and required fees ($23,000 for nonresidents) for the 1st, 2nd, and 3rd years, 11,500 for the 4th year (18,700 for nonresidents).
  - $4,000 for books and supplies for the 1st year, $3,900 for the 2nd and 3rd years, $1,800 for the 4th year.
  - $11,600 for room and board, transportation, and personal and miscellaneous expenses in the 1st, 2nd, and 3rd year, $7,700 for the 4th year.[1]

- Thus, the price of attendance for a four-year education as a Doctor of Dental Surgery (DDS) is about $111,700 for a Minnesota resident and $144,700 for a non resident student.

Sources of Support Other Than Loans

Grants and Other Discounts

- At the University of Minnesota in the 1998-99 academic year, 10 percent of the 327 DDS students received grants funded by the University of Minnesota that did not require a service commitment. The average amount of these grants was $2,300.

- 86 percent of University of Minnesota DDS students in 1998-99 received grants funded by sources outside the University of Minnesota that did not require a service commitment.[2] The average amount of these grants was $5,000.

  - Nationally, 43 percent of dentists who attended public universities reported receiving

1 The $11,600 amount for living and miscellaneous expenses is the amount that the University of Minnesota School of Dentistry assumes for 12 months of attendance. The allowance assumes that financial aid is meant to support the student, not any dependents the student may have.

2 American Association of Dental Schools, *Survey of Student Financial Assistance: 1998-99*. September 1999. Sources other than the University of Minnesota were defined as individuals, foundations, agencies, state.

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scholarships or other financial assistance that did not require repayment.[3] The average amount received was $11,900.

- At the University of Minnesota, two percent of DDS students in 1998-99 received scholarships and a monthly stipend from the Uniformed Services of the U.S. government. The service commitment was 2 to 4 years. The average amount of assistance was $23,500.[4]

- Nationally, three percent of 1998 DDS seniors reported receiving a scholarship and a monthly stipend from the Uniformed Services of the U.S. government. The average amount of assistance was $19,700.

Current Income

- DDS students at the University of Minnesota do not work in teaching and research assistantships.

- The University of Minnesota School of Dentistry strongly recommends that DDS students not work at all during their first and second years of enrollment.

- The demands of DDS education make it difficult for students to spend time working in order to pay for their education. DDS students are expected to attend full-time and the curriculum demands many hours of study and clinical work.

- Some fields of graduate education provide opportunities for teaching assistantships, traineeships, graduate assistantships and fellowships while students are enrolled in graduate school.

  - DDS students at the University of Minnesota are not eligible for these positions.

- Nationally, less than 45 percent of 1998 DDS seniors reported using self-earned income to pay the price of dental education. The average amount for those who used self-earned income was $7,700.

3 American Dental Association, *1998 Survey of New Dentists on Impact of Student Debt*, January 1999.

4 The Uniformed Services include the Air Force Dental Corps, the Army Dental Corps, the Department of Defense, the Navy Dental Corps, the U.S. Public Health Service, and the U.S. Department of Veterans Affairs. Recipients received grants for tuition and required fees and a stipend of $970 per month. The 1997 Department of Defense Authorization Act provides a $30,000 signing bonus for all eligible dentists who sign up for the military or the U.S. Public Health Service.

Savings

- Nationally, 32 percent of 1998 DDS seniors reported using personal savings to pay for dental education. The average amount was $11,500.

How Many Dental (DDS) Students Borrowed?

- 78 percent of the 74 students who graduated from the University of Minnesota School of Dentistry in 1998 had student loans, as shown in Figure 4.[5]

  - Nationally, 93 percent of 1998 DDS seniors had student loans upon graduation from dental school.

How Much Did Dental (DDS) Students Borrow?

- Dentistry students who received their degrees in 1998 at the University of Minnesota and who had student loans had median debt of $84,400.[6]

- The average (mean) debt for 1998 University of Minnesota DDS graduates with loans was $78,500.[7]

  - Graduating dentists at U.S. public institutions had an average (mean) of $70,700 in student debt.[8]

5 This is the number of students with loans that were known to the University of Minnesota. Students who attended other institutions prior to attending the University of Minnesota may have loans in addition to those reported here.

6 Amounts borrowed are the amounts known to the University of Minnesota. Students who attended other institutions prior to attending the University of Minnesota may have additional student loan debt.

7 American Association of Dental Schools, *Survey of Dental School Seniors 1998*, 1999.

8 Nationally, 56 percent of 1998 DDS seniors had *non-education debt* upon graduation from dental school. The median amount for those with non-education debt was $15,000.

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What kind of loans did they use?

- The distribution of amounts borrowed by 1998 graduating dentists at the University of Minnesota and nationally is shown in Figure 5.
  - While Minnesota students had higher average debt, fewer of Minnesota s graduating dentists had debt of $100,000 or more than their national counterparts (11 percent for Minnesota, 26 percent nationally).

- Dental students at the University of Minnesota borrowed under the loan programs shown in Figure 6 in 1998-99. The borrowing limits and terms of repayment are described in Appendix 1.
  - Most dental students used Federal Direct Subsidized Loans and Federal Direct Unsubsidized Loans (72 percent and 68 percent respectively), as shown in Figure 6.

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- About one-third (36 percent) had Health Professions Student Loans (HPSLs).
- Two percent of dental students had private loans called Alternative Dental Education Assistance Loans (ADEAL).
- 16 percent of dental students had Minnesota Student Educational Loan Fund (SELF) Loans.
- 37 percent of dental students had University Trust Fund Loans.

Repayment

What were the payments on the median debt?

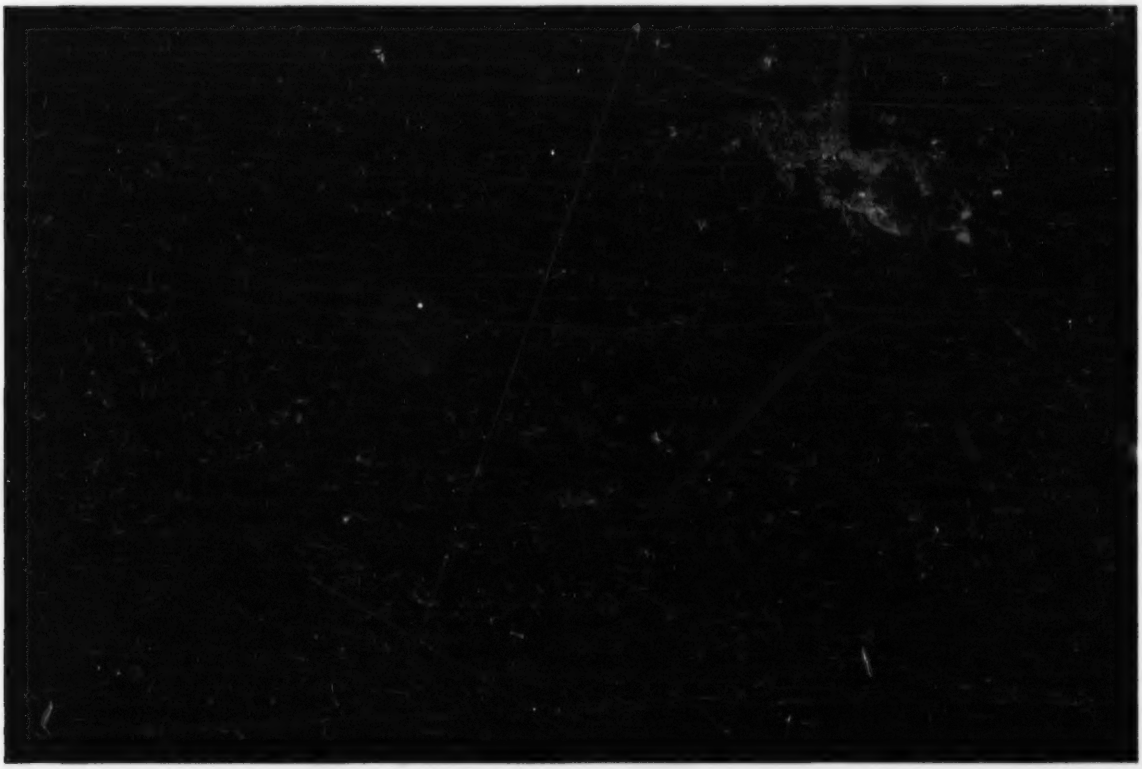
- Monthly payments on $84,400 at 7 percent interest are $951 per month for a 10-year repayment plan and $560 per month for a 25-year repayment plan.[9]

9 Calculations are based on a 7 percent interest rate. Actual interest rates are variable. The interest rate charged in 1999-2000 on Federal Stafford and Direct Loans in repayment is 6.92 percent. Interest rates on these loans are capped at 8.25%.

How much did dentists earn in the early years of practice?

- Dentists, age 30-34, in general practice in the U.S., earned median net income of $82,000 in 1996.[10]

- The University of Minnesota School of Dentistry alumni survey found that 1999



graduates reported being offered an average starting salary of $75,000.

Payments as a Percent of Income

- Most new dentists earn $70,000 or more.

10 Age 30-34 was the youngest category reported. Information is from *The 1997 Survey of Dental Practice, Income from the Private Practice of Dentistry*, American Dental Association, 1998. Dentists (of all ages) in general practice in the West North Central region of the U.S. had median net income of $100,700 in 1996. This compared to a national median net income of $112,000 for dentists in general practice.

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- A dentist with an income of $70,000 and debt of $84,400 would pay 16 percent of income on a 10-year repayment plan, or 10 percent of income on a 25-year repayment plan. The borrower would pay additional interest in a longer repayment plan.

Loan Repayment and Forgiveness Programs

- Dentists who are willing to work in federally designated shortage areas are eligible to participate in two loan repayment programs; these programs are described in Appendix 2.
  - The Federal National Health Service Corps (NHSC) loan repayment program.
  - The Minnesota NHSC State Loan Repayment Program (SLRP).
- Minnesota has five designated dental shortage areas in 1999-2000.
  - Two of the areas are in federal correctional facilities in Rochester and Duluth.
  - The other areas are in Cook County, Little Fork/Big Falls, and Koochiching County.
- Few dentists participate in these programs in Minnesota (currently one dentist is participating in the NHSC loan repayment program).

Research on the Impact of Student Debt on Dentists

- The American Dental Association conducted the *1998 Survey of New Dentists on Impact of Student Debt.*
  - This was a national survey of a random sample of dental school graduates from the classes of 1993-1997. There were about 1,000 respondents.
  - The average monthly payment among dentists who graduated from public dental schools was $734.
  - Respondents were asked about various options available to assist them in managing their debt from dental school.
    - Although more than 50 percent of respondents said they were aware of each option, only two options were actually used by more than two percent of respondents:
      - 39 percent of respondents used loan consolidation provided by the federal

government or private lenders.

- In loan consolidation programs, a borrower with several loans receives one new loan with lower initial payments and the repayment period is extended from 10 years to 15 years or more. Extending the repayment period costs the borrower more in additional interest.

- 48 percent enrolled in postdoctoral programs or residencies and deferred repayment.

- Fewer than two percent used the following options:

  - Joining the Federal Dental Services [Uniformed Services] for the $30,000 signing bonus.
  - Joining the National Health Services Corps for the loan repayment program.
  - Joining the Indian Health Service for the loan repayment program.

- About two thirds (63 percent) of respondents said that their educational debt affected their practice options when they graduated from dental school.

  - Respondents who said their practice options were affected were then asked how their options were affected, as shown in Table 1.

Table 1. Ways in Which Practice Options Were Affected by Education Debt (for Respondents Who Attended Public Universities)	
I could not afford to start my own practice.	94 percent
I could not afford to purchase a practice.	90 percent
I had to accept an associate position.	77 percent
I had to accept a position as an employee.	63 percent
I had to practice full-time instead of part-time.	53 percent
I wanted to defer starting to practice, but could not do so.	14 percent
I had to join the Federal Dental Services [Uniformed Services].	10 percent
I had to join the National Health Service Corps or Indian Health Services.	7 percent

- Many respondents said their debt affected their ability to start a practice, purchase a practice, or defer the start of practice. However, the study did not ask respondents without student loans to answer the same questions.
  - It is possible that many respondents without student loans would also have reported feeling like they were unable to afford starting a practice, unable to afford buying a practice, or unable to defer the start of practice.

- Responding dentists were asked to look ahead 10 years and indicate the degree to which their education debt would affect them financially, as shown in Table 2.

Table 2. What effect will the financial impact of your educational debt have on you over the next ten years? (For Respondents Who Attended Public Universities)	
No Effect	13 percent
Very Little Effect	13 percent
Somewhat of an Effect	38 percent
Substantial Effect	37 percent

- Those who borrowed more were more likely to respond that their educational debt would have a substantial effect.
  - The median educational debt of respondents who attended public schools and answered that their debt would have a substantial effect was $80,000.
  - The median education debt of those who answered that their debt would have very little effect was $40,000.

- Respondents were asked about the role that they would like the American Dental Association to play in addressing the issue of dental student education debt.
  - Respondents without education debt were much less likely to choose any of the options listed.
  - Respondents with education debt chose the options Provide resources to help recent graduates manage their debt and encourage dental schools to keep the costs of a dental education low most frequently, as shown in Table 3.

Table 3. Role that the American Dental Association Should Play in Addressing the Issue of Dental Student Education Debt[11]

	Respondents with Education Debt	Respondents with No Education Debt
Raise dental students awareness of the impact of financial debt while in dental school.	55 %	39 %
Provide resources to help recent graduates manage their debt.	69 %	43 %
Encourage dental schools to keep the costs of a dental education low.	68 %	42 %
Increase awareness of loan consolidation programs for recent graduates available through the ADA 1 PLAN. [12]	43 %	**
Increase awareness of practice start-up/acquisition loans for recent graduates available through the ADA 1 PLAN. [13]	44 %	**
Other.	10 %	**
**Too few respondents for reliable analysis.		
Source: American Dental Association, *1998 Survey of New Dentists on Impact of Student Debt*		

11 American Dental Association, *1998 Survey of New Dentists on Impact of Student Debt*, January 1999.

12 The American Dental Association and Mellon Bank provide student loan consolidation as part of their ADA 1 PLAN package of financial services.

13 The American Dental Association and Mellon Bank provide loans for the start up and acquisition of dental practices as part of their ADA 1 PLAN package of financial services.

Medicine

The Price Students Pay for Medical Education at the University of Minnesota[14]

- Annual tuition and required fees at the University of Minnesota in the 1999-2000 academic year are:
  - $18,600 per year for the first and second years
  - $13,500 per year for the third and fourth years
  - The University of Minnesota Medical School uses a living allowance (for all expenses other than tuition and fees) of approximately $12,000 per year.[15]
- Thus, the price of attendance for a four-year medical education is about $112,000.

Sources of Support Other Than Loans

Grants and Scholarships

- 81 percent of the University of Minnesota medical students received scholarships or grants while enrolled at the Medical School.
- About 55 percent of the 830 students at the University of Minnesota Medical School in the 1997-98 academic year received school-funded, need based grants. The average amount for those who received these grants was $1,600.[16]
- About 13 percent received tuition remission for employees and/or staff. The average amount was $4,900.
- About 15 percent received other need based grants. The average amount was $5,200.
- About 75 percent received outside-funded need based grants and scholarships from sources such as the National Medical Fellowship program, the Joseph Collins Foundation, and the

14 This section includes information on both the Medical School at the University of Minnesota Twin Cities campus and the Duluth campus. Some medical students attend the 1st and 2nd year of Medical School on the Duluth campus.

15 The $12,000 living and miscellaneous expense allowance is the estimate used by the University of Minnesota Medical School for 12 months of attendance.

16 *LCME Student Financial Aid Questionnaire 1997-98.*

Minnesota Medical Foundation. The average amount received was $1,100.

- About three percent received armed forces health professions grants with a service commitment. The average amount was $16,100.

- About two percent received other grants with a service commitment. The average amount was $6,800.

Current Income

- The demands of medical education make it difficult for students to spend time working in order to pay for their education. Medical students are expected to attend full-time, and the curriculum demands many hours of study and clinical work.

- Some fields of graduate education provide opportunities for teaching assistantships, traineeships, graduate assistantships and fellowships while students are enrolled in graduate school.

  - These assistantships and fellowships help the students generate income to pay for their education and often include tuition discounts or waivers.

    - However, only a small percentage of medical students are able to take advantage of graduate assistantships because of the demands of the medical school curriculum and the limited number of positions.

How Many Students Borrowed?

- In Minnesota, 93 percent of the class of 1998 had loans by the time they graduated, as shown in Figure 7.[17] Nationally, 84 percent of the class of 1998 had borrowed.

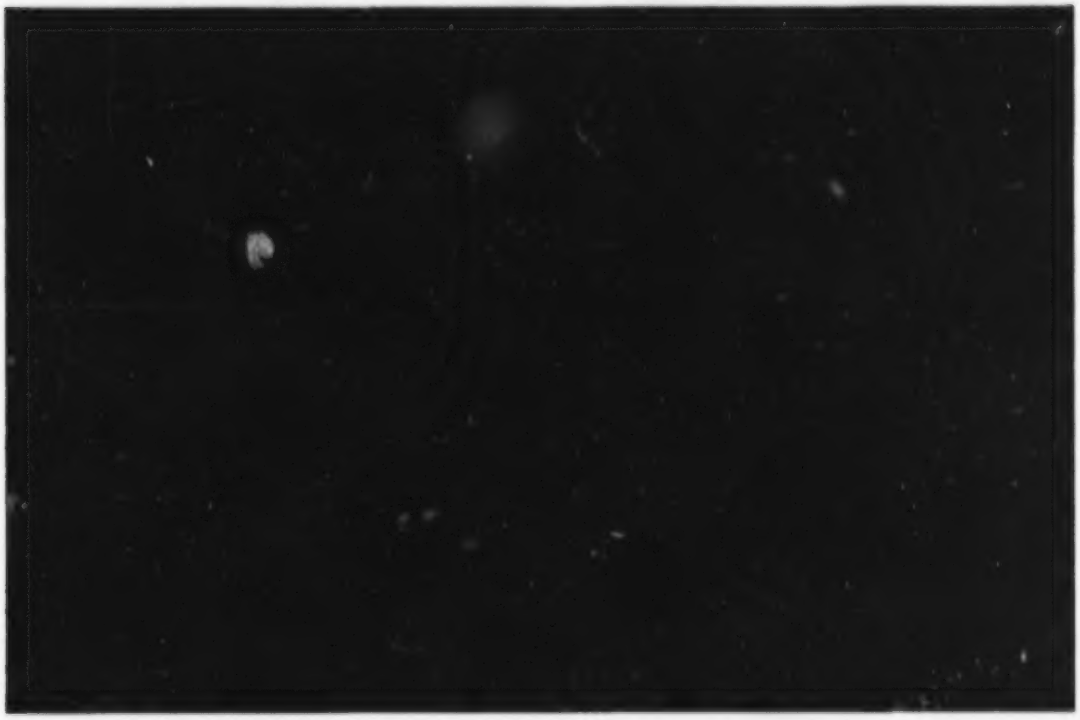
  - In Minnesota, 46 percent of the class of 1998 had student loans from their undergraduate education. Nationally, 33 percent had borrowed for undergraduate education.

  - In Minnesota, 48 percent had "debts other than educational (such as credit cards and car loans). Nationally, 43 percent had non-education debt.

17 There were 234 students in the University of Minnesota Medical School Class of 1998. These data are from the University of Minnesota 1998 Medical School Graduation Questionnaire.

How Much Did Students Borrow?

- The average cumulative education debt for 1998 graduates of the University of Minnesota Medical School who borrowed was $82,200.
- The average cumulative education debt for 1998 graduates of U.S. medical schools who borrowed was $85,600.
- The distribution of amounts borrowed by 1998 graduating physicians at the University of



Minnesota and nationally is shown in Figure 8.

What kind of loans did they use?

Description of Loan Programs

- Medical students at the University of Minnesota used the loan programs shown in Figure 9 in

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1997-98. Borrowing limits and terms of repayment are described in Appendix 1.

- Most medical students used Federal Direct Subsidized Loans and Federal Direct Unsubsidized Loans (86 percent and 70 percent respectively), as shown in Figure 9.
- About 10 percent had Primary Care Loans.[18]
- About one-third had private loans called MedCAP Alternative Loans and Medloans Alternative Loans.
- Two percent of medical students had Minnesota SELF Loans.
- 63 percent of medical students had University Trust Fund Loans.

18 Primary Care Loans include a mandatory commitment to a primary care specialty through repayment. Recipients who do not fulfill this requirement are required to repay the loans in three years at 18 percent interest.

Repayment

Physician Income

How much do physicians earn in the early years of practice?

- Physicians in residencies typically earn $30,000 to $40,000 per year.[19]

- Average stipends in hospitals in the Midwest region in 1998-99 ranged from $34,000 for residents in the 1st post-M.D. year to $40,000 for residents in the 6th post-M.D. year.

- Median net earnings for U.S. physicians ages 30-34 (the youngest category reported) were

19 1998 COTH Survey of House Staff Stipends, American Association of Medical Colleges web site, 7/23/99.

$124,800.[20]

- The median net earnings for physicians of all ages and in all fields of practice in states in the Great Lakes Region (including Minnesota) were $170,600 in 1998.

Payments as a Percent of Income

- Payments on $82,200 in student loans are about $954 per month on a 10-year repayment plan, $581 on a 25-year repayment plan (assuming 7 percent interest).[21]
  - $954 per month is 32 percent of a $35,000 stipend for a physician in residency.
  - The same payments would be 11 percent of a $100,000 income for a new physician.
  - The same payments would be 8 percent of a $150,000 income for a physician with several years of experience.
- Table 4 shows payments as a percent of a $35,000 resident s income and a $100,000 new physician s income for loan balances of $60,000, $80,000, and $100,000.

20 Journal of Medical Economics, *Continuing Survey of Physician Income*, Sept. 20, 199.

21 Calculations are based on a 7 percent interest rate. Actual interest rates are variable. The interest rate charged in 1999-2000 on Federal Stafford and Direct Loans in repayment is 6.92 percent. Interest rates on these loans are capped at 8.25%.

Table 4. Examples of Loan Payments as a Percent of Income					
Principal Amount	Interest Rate	Monthly Payment	Repayment Period	Annual Income	Payments as a Percent of Income
Payments as a Percent of Income for a **Medical Resident**:					
$80,000	7%	$929	10 years	$35,000	32%
$80,000	7%	$565	25 years	$35,000	19%
Payments as a Percent of Income for a **New Physician**:					
$60,000	7%	$697	10 years	$100,000	8%
$60,000	7%	$424	25 years	$100,000	5%
$80,000	7%	$929	10 years	$100,000	11%
$80,000	7%	$565	25 years	$100,000	7%
$100,000	7%	$1,161	10 years	$100,000	14%
$100,000	7%	$707	25 years	$100,000	8%
$120,000	7%	$1,393	10 years	$100,000	17%
$120,000	7%	$848	25 years	$100,000	10%

Deferment and Forbearance

- Until 1993, physician borrowers received deferments during their first two years of medical residency.
  - During the deferment, borrowers did not make payments. The federal government paid the interest to the lenders.
- Borrowers with loans taken out after July 1, 1993 are not eligible for deferment of payments during residency.

- However, they can get a combination of economic hardship deferments and forbearance.
  - Economic hardship deferments are available for up to three years if payments are more than 20 percent of gross income and income minus payments is below federal poverty guidelines.
    - For example, a family of two with a medical resident making $30,000 would qualify for the hardship deferment if student loans were $41,000 or more (at 7 percent interest).
    - Many medical residents qualify for this deferment for their first one to two years of residency.
    - The federal government pays interest to the lender during the deferment.
- Once medical residents are not eligible for the economic hardship deferment, they can get forbearance.
  - Nearly all borrowers with forbearance do not make payments during the period of forbearance, but interest does accrue.
    - 7% interest on an $82,000 loan accrues at a rate of about $480 per month ($5,800 per year) in the first year of repayment.
- Doctors who go back to school for additional training are eligible for deferments if the training is a diploma program and if they are enrolled on a more than half-time basis.
  - An example of a diploma program is when a specialist in internal medicine goes back to school for a subspecialty in the treatment of allergies.

Loan Forgiveness and Repayment Assistance

- Up to 30 of the 280 new Minnesota doctors per year may receive loan repayment assistance from the state and federal government.[22]
  - Additional information about loan repayment programs is included in Appendix 2.

22 The precise number of physicians who receive loan repayment assistance varies from year to year.

Nursing

How Long Does it Take to Get a Degree in Nursing?

- Before enrolling in the nursing bachelor of science degree program, the students fulfill pre-nursing course work which takes the average student about 2-3 years of full-time attendance.

- Once admitted to the upper division nursing bachelor s degree program, full-time students attend for at least two years, plus a five-week intersession.

- The master s degree and nurse practitioner degrees generally take students 2-3 years of full-time attendance to complete.

- The nursing Ph.D. degree program generally admits students who already have master s degrees. It takes a full-time student 3 to 5 years of attendance to complete a Ph.D. degree.

The Price Students Pay for Nursing Education at the University of Minnesota

Bachelor s Degree Nurses

- The annual price to the undergraduate nursing student at the University of Minnesota in the 1999-2000 academic year is:

    - $5,300 for tuition and required fees ($12,800 for nonresidents)
    - $730 for books and supplies
    - $7,700 for room and board, transportation, and personal and miscellaneous expenses.[23]

- Thus, the price of attendance for a four-year Bachelor of Science in Nursing is at least $54,900 for a Minnesota resident and $84,900 for a non resident student.

Master s Degree Nurses

- The annual price for a master s degree, nursing practitioner, or Ph.D. degree student is:

23 The $7,700 amount for living and miscellaneous expenses is the estimate used by the University of Minnesota Office of Student Financial aid. The estimate assumes 9 months of attendance.

- $6,200 for tuition and required fees ($11,100 for nonresidents)
- $730 for books and supplies
- $7,700 for room and board, transportation, and personal and miscellaneous expenses.

- Thus, the price of attendance for a 3-year master s degree in nursing is about $43,900 for a Minnesota resident and $58,600 for a non resident.

Ph.D. Degree Nurses

- The annual price of attendance for a nursing Ph.D. degree is an additional $43,900 to $73,200 for a Minnesota resident and $58,600 to $97,700 for a non resident.

How Many Nursing Students Borrowed?

Bachelor s Degree Nurses

- At the University of Minnesota, 64 percent of the 111 students who received bachelor s degrees in nursing in 1998 borrowed, as shown in Figure 10.

- Nationally, 60 percent of 1996 bachelor s degree recipients borrowed during their undergraduate career.

Master s Degree Nurses

- At the University of Minnesota, 42 percent of the 83 students who received master s degrees in nursing in 1998 borrowed, as shown in Figure 10.

- Nationally, 24 percent of master s degree students in 1995-96 borrowed.[24]

Ph.D. Degree Nurses

- At the University of Minnesota, 8 students received Ph.D. degrees in nursing in 1998.

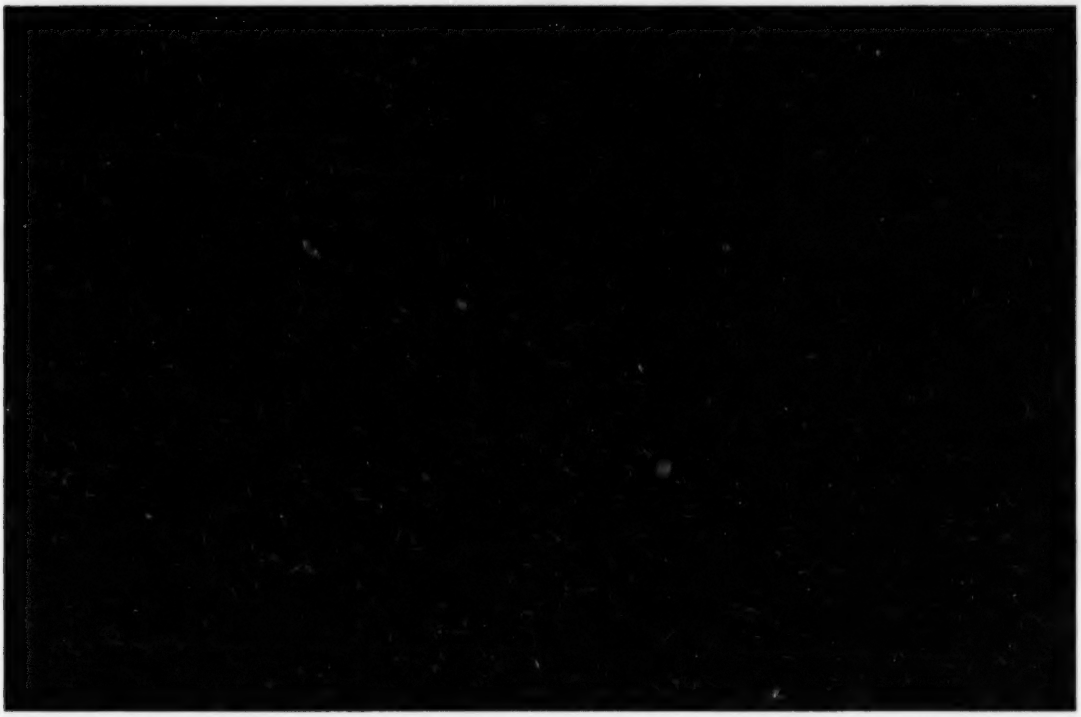
- Four of the Ph.D. degree recipients borrowed (50 percent), as shown in Figure 10.

24 1996 National Postsecondary Student Aid Study, National Center for Education Statistics, May 1998.

How Much Did Nursing Students Borrow?

Bachelor s Degree Nurses

- At the University of Minnesota, the median student loan debt for students who borrowed among the 1998 recipients of bachelor s degrees in nursing was $21,000.[25]



- The distribution of borrowing among University of Minnesota 1998 bachelor s degree nurses is shown in Figure 11.

  - 36 percent did not borrow.
  - 30 percent borrowed $1-$19,999.
  - 29 percent borrowed $20,000-39,999.
  - 5 percent borrowed $40,000-53,000.

25 Amounts borrowed are the amounts known to the University of Minnesota. Students who attended other institutions prior to attending the University of Minnesota may have additional student loan debt.

Master s Degree Nurses

- At the University of Minnesota, the median student loan debt for students who borrowed among the 1998 recipients of master s degrees in nursing was $16,900.

  - Many master s degree nursing students previously worked as registered nurses. While working in those earlier jobs, these nurses often repaid some of the student loans they incurred as undergraduates.

- The distribution of borrowing among University of Minnesota master s degree nurses is shown in Figure 11.

  - 58 percent did not borrow.
  - 23 percent borrowed $1-19,999.
  - 14 percent borrowed $20,000-39,999.
  - 5 percent borrowed $40,000-99,999.

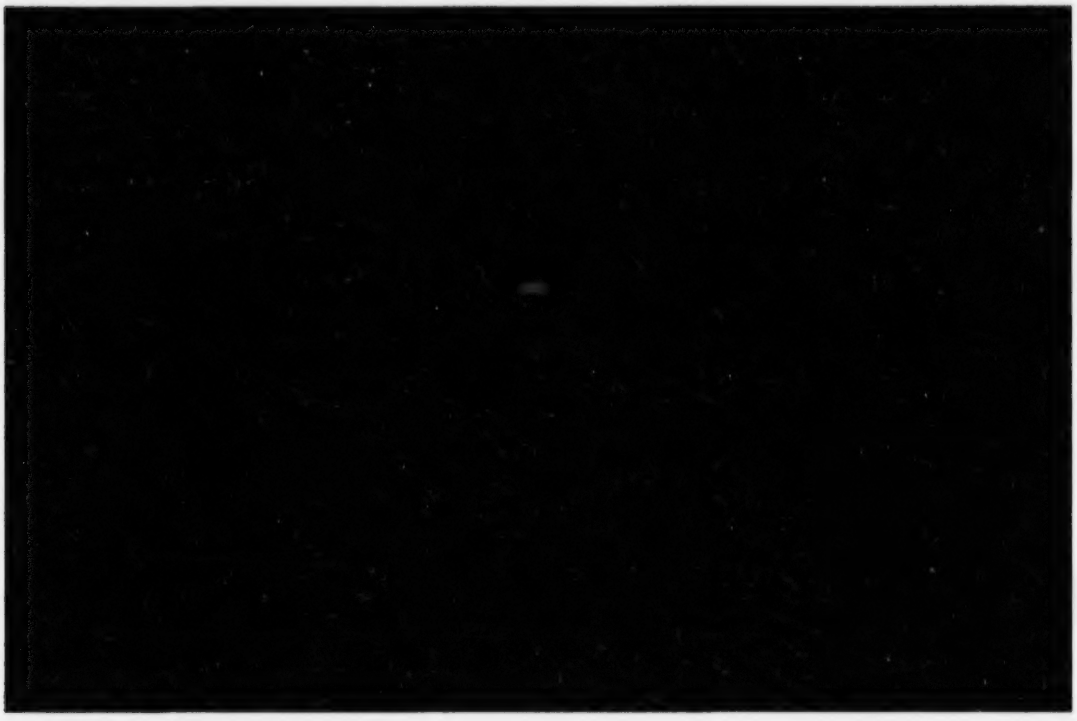
Ph.D. Degree Nurses

- At the University of Minnesota, the average student loan debt for the four students who borrowed among the 1998 recipients of Ph.D. degrees in nursing was $11,700.

What kinds of loans did they have?

- Nursing students borrowed under the loan programs listed below. Terms and conditions are described in Appendix 1.

  - Federal Direct Subsidized Loans
  - Federal Direct Unsubsidized Loans
  - Federal Nursing Student Loans
  - Federal Perkins Loans



  - Minnesota SELF Loans
  - Private Loans
  - University Trust Fund Loans

Repayment

- Payments on the $21,000 median debt for bachelor s degree nurses are $244 per month for a

10-year repayment plan at 7 percent interest.[26]

- Payments on the $16,900 median debt for master s degree nurses are $196 per month.
- Payments on the $11,700 average debt for Ph.D. degree nurses are $136 per month.

How much do nurses earn?

Bachelor s Degree Nurses

- The University of Minnesota School of Nursing alumni survey said that the average salary for bachelor s degree nurses who graduated in 1997 was $37,000.
  - The range of salaries for bachelor s degree nurses who graduated in 1998 and responded to the alumni survey was $20,000 to $60,000 per year.

Master s Degree Nurses and Nurse Practitioners

- The range of salaries for master s degree nurses who graduated in 1998 was $30,000 to $75,000.
- The average salary for a first year nurse practitioner in the Third District (Hennepin County) of Minnesota in 1998 was $53,900.[27]
  - The range of salaries for first year nurse practitioners in the Third District went from $51,900 for family practice nurse practitioners to $57,200 for pediatric nurse practitioners.

Payments as a Percent of Income

- Bachelor s degree nurses - Assuming that most bachelor s degree nurses earn at least $30,000, payments on the median debt of $21,000 would be 10 percent of income.
- Master s degree nurses - Assuming that most master s degree nurses and nurse practitioners

26 Calculations are based on a 7 percent interest rate. Actual interest rates are variable. The interest rate charged in 1999-2000 on Federal Stafford and Direct Loans in repayment is 6.92 percent. Interest rates on these loans are capped at 8.25%.

27 3rd District Nurses, Minnesota, *Nurse Practitioner Salary Survey 1999*, November 1999.

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earn at least $45,000, payments on the median debt of $16,900 would be 5 percent of income.

- Ph.D. degree nurses - Assuming that most Ph.D. degree nurses earn at least $45,000, payments on the average debt of $11,700 would be 4 percent of income.

Pharmacy

Description of the Pharm.D. Program

- The entry level Doctor of Pharmacy Program prepares students to become pharmacists.
- Before enrolling in this full-time, four year program, students fulfill pre-pharmacy course work which takes the average student about three years to complete.
  - About 50 percent of the pharmacy students at the University of Minnesota have a bachelor s degree before entering the College of Pharmacy.[28]

The Price Students Pay for Pharmacy Education at the University of Minnesota

- The annual price to the student at the University of Minnesota in the 1999-2000 academic year is:
  - $9,700 for tuition and required fees ($16,700 for nonresidents)
  - $1,700 for books and supplies
  - $7,700 for room and board, transportation, and personal and miscellaneous expenses.[29]
- Thus, the price of attendance for a four-year pharmacy education is about $76,400 for a Minnesota resident and $104,400 for a non resident student.

How Many Pharmacy Students Borrowed?

- Approximately 87 percent of the 70 Pharm.D. recipients at the University of Minnesota in 1998 had student loan debt, as shown in Figure 12.

28 Information from Dr. Wendy St. Peter, Associate Professor, College of Pharmacy, University of Minnesota, 1/10/2000.

29 The $7,700 amount for living and miscellaneous expenses is the estimate used by the University of Minnesota Office of Student Financial aid. The estimate assumes 9 months of attendance.

How Much Did Pharmacy Students Borrow?

- Pharmacy graduates in 1998 who had borrowed had median cumulative debt of $44,000.[30]

- The amounts borrowed were distributed as listed below and shown in Figure 12.

  - 13 percent did not borrow.
  - 10 percent borrowed $1-19,999.
  - 27 percent borrowed $20,000-39,999.
  - 31 percent borrowed $40,000-59,999
  - 19 percent borrowed $60,000-102,999.

What kind of loans did they have?

- Pharmacy students borrowed under the loan programs listed below. Terms and conditions are described in Appendix 1.

  - Federal Direct Subsidized Loans
  - Federal Direct Unsubsidized Loans
  - Health Professions Student Loans
  - Minnesota SELF Loans
  - Private Loans
  - University Trust Fund Loans

Repayment

What were the payments on the median debt?

- Monthly payments on $44,000 at 7 percent interest are $511 for a 10-year repayment plan and $311 for a 25-year plan.[31]

30 Amounts borrowed are the amounts known to the University of Minnesota. Students who attended other institutions prior to attending the University of Minnesota may have additional student loan debt.

31 Calculations are based on a 7 percent interest rate. Actual interest rates are variable. The interest rate charged in 1999-2000 on Federal Stafford and Direct Loans in repayment is 6.92 percent. Interest rates on these loans are capped at 8.25%.

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How much do pharmacists earn in the early years of practice?

- The University of Minnesota College of Pharmacy estimates that starting salaries for new graduates with Pharm.D. degrees range from $50,000 to $60,000 per year.[32]

  - *Minnesota Pharmacist* magazine s November 1999 issue said that the average salary of a pharmacist in Minnesota is $30.81 per hour, which is roughly equivalent to $64,000 per year.

  - A College of Pharmacy study indicates that there is a shortage of pharmacists in Minnesota and starting salaries for new pharmacists are close to salaries of pharmacists with several years experience.

Payments as a Percent of Income

- Payments on $44,000 at 7 percent interest are 12 percent of a $50,000 annual income, on a 10-year repayment plan or 7 percent of income on a 25-year plan.

32 College of Pharmacy web page, 12/17/99

Public Health

How Long Does It Take to Get a Degree in Public Health?

- The University of Minnesota School of Public Health offers degrees in Biostatistics, Community Health Education, Environmental Health, Epidemiology, Health Services Research, Policy and Administration, Maternal and Child Health, Public Health Administration, and Public Health Nutrition.

- Most master s degree (M.S. and M.P.H.) students complete their degrees in three years or less.

- Students who enter public health programs with prior advanced degrees (such as M.D.s) usually complete the program in less than two years.

- Ph.D. degree students usually complete their programs in 3 to 5 years.

The Price Students Pay for Public Health Education at the University of Minnesota

- The annual price to the graduate student at the University of Minnesota in the 1999-2000 academic year is:

    - $5,500 for tuition and required fees ($9,600 for nonresidents)
    - $750 for books and supplies
    - $7,700 for room and board, transportation, and personal and miscellaneous expenses.[33]

- Thus, the price of attendance for a three-year master s degree in public health is about $42,000 for a Minnesota resident and $54,200 for a non resident student.

- The price of attendance for a four-year Ph.D. degree in public health is about $55,800 for a Minnesota resident and $72,200 for a non resident.

33 The $7,700 amount for living and miscellaneous expenses is the estimate used by the University of Minnesota Office of Student Financial aid. The estimate assumes 9 months of attendance.

Sources of Support Other Than Loans

Current Income

- Public health offers numerous opportunities for teaching assistantships, traineeships, graduate assistantships and fellowships while students are enrolled in graduate school.
    - These positions help the students generate income to pay for their education and often include tuition discounts or waivers.
- Many public health graduate students work full-time and attend graduate school. These students have income to help pay for their education.

How Many Public Health Students Borrowed?

- 34 percent of the 152 students who received graduate degrees from the School of Public Health in 1998 borrowed, as shown in Figure 13.

How Much Did Public Health Students Borrow?

- Public health graduates in 1998 who borrowed had median cumulative debt of $15,000.
- The amount borrowed was distributed as listed below and shown in Figure 13.
    - 66 percent did not borrow.
    - 27 percent borrowed $1-$19,999.
    - Five percent borrowed $20,000-39,999.
    - Two percent borrowed $40,000-75,999.

Repayment

What Are the Payments on the Median Amount of Debt?

- Monthly payments on the $15,000 median debt are $174 on a 10-year repayment plan

(assuming 7 percent interest).[34]

How Much Do Public Health Graduates Earn?

- The Association of Schools of Public Health (ASPH) regularly conducts surveys of graduates. In the most recent survey ASPH reports salaries earned within one year graduation as follows:[35]

  - Biostatistics - $22,000-$42,000
  - Epidemiology - $25,500-$90,800
  - Health Services Administration - $24,700-$107,600
  - Health Education/Behavioral Science - $22,000-$57,800
  - Environmental Health - $29,700-$95,800
  - Nutrition - $21,000-$47,300
  - Public Health Practice/Program Management - $27,500-$68,000

What are Payments As a Percent of Income?

- Assuming a starting salary of $30,000 for a borrower with a graduate degree in public health, student loan payments would be 7 percent of income on a 10-year repayment plan.

34 Calculations are based on a 7 percent interest rate. Actual interest rates are variable. The interest rate charged in 1999-2000 on Federal Stafford and Direct Loans in repayment is 6.92 percent. Interest rates on these loans are capped at 8.25%.

35 Association of Schools of Public Health web site, *Ten Most Asked Questions by Prospective Students*, 1/13/2000.

Veterinary Medicine

The Price Students Pay for Veterinary Education at the University of Minnesota

The annual price of attendance for veterinary students at the University of Minnesota in the 1999-2000 academic year is:

- $10,900 for tuition and required fees ($20,600 for nonresidents)
- $1,600 for books and supplies
- $7,700 for room and board, transportation, and personal and miscellaneous expenses.[36]

- Thus, the price of attendance for a four-year veterinary education is about $80,800 for a Minnesota resident and $119,600 for a non resident student.

How Many Students Borrow?

- 83 percent of the 75 veterinarians at the University of Minnesota who graduated in 1998 borrowed, as shown in Figure 14.

How Much Did Students Borrow?

- Veterinary graduates (from the University of Minnesota in 1998) who borrowed had median cumulative debt of $56,500.
  - Average debt was $50,800.
    - The average debt for U.S. veterinary graduates was $56,000, according to the American Veterinary Medical Association.[37]

- The distribution of student loan debt among 1998 veterinary graduates at the University of Minnesota is listed below and shown in Figure 14.

36 The $7,700 amount for living and miscellaneous expenses is the estimate used by the University of Minnesota Office of Student Financial aid. The estimate assumes 9 months of attendance.

37 American Veterinary Medical Association, *Student Loan Deferments Issue Brief*, AVMA web site 1/11/2000.

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